The Indirect Distribution Dilemma: Assessing the Financial Impact of Participation in Booking.com for Hotels

Abstract

Purpose – To assess if the benefits outweigh the costs of participation in online travel agencies (OTAs) such as Booking.com.

Design/methodology/approach – A two-step system GMM estimation of a regression model of firm-level return on assets (ROA) on a dummy variable indicating whether a lodging facility participates in Booking.com. The assessment contained various control variables, including size, age, leverage, liquidity and lagged ROA. The moderating effect of firm age and size was studied by including interaction variables between the Booking.com dummy and age and size, respectively. The model was estimated using participation and financial data of 775 Belgian firms over a 20-year period (1999-2018).

Findings – The findings indicate that participation in Booking.com is associated with higher profitability, with this effect more economically important and pronounced for smaller hotel properties.

Research limitations/implications – The study provides a broadly applicable empirical model to assess the impact of platform participation on the financial performance of tourism, hospitality or retail businesses.

Practical implications – The study provides empirical evidence that, from a transaction cost perspective, the benefits of participation in OTAs outweigh the costs, resulting in substantially higher profitability. The evidence can be used to justify the use of OTAs as distribution channels.

Originality/value – While prior studies have described and conceptually analysed the evolution and role of OTAs in the hotel sector, and speculated on the net effect of OTA participation, to our knowledge, this is the first to empirically assess whether OTA participation creates value for hotel owners and investors.

Keywords – Booking.com, online travel agencies, OTA, profitability, Belgium

Paper type – Research paper

Introduction

Although perceived as a service industry, the hotel sector today is essentially a real estate business, with owners utilising the guest service element as a tool to maximise financial return per square meter (Campos Soria, García, & Ropero, 2005; Kim, Cho, & Brymer, 2013; O'Neill, Mattila, & Xiao, 2006). However, the highly perishable nature of the hotel product (an unsold hotel room cannot be stored and subsequently offered for sale) makes efficient and effective distribution vital to hotel profitability (O'Connor & Frew, 2002). Each additional room sold contributes to fixed costs, making the sale of each room each night at the optimum price critical to long term success (Kimes, 1989). As a result, most hotels now proactively place a high emphasis on optimising distribution efforts to drive sales and profitability (Beritelli & Schegg, 2016).

This typically involved working with a portfolio of third-party intermediaries – partner companies that essentially act as information brokers to position the property in front of potential customers in return for a commission or share in the resulting revenue (O'Connor, 1999;Webb, 2016). Historically these included travel value chain participants such as retail travel agents, tour operators or destination management organisations, each of who formed a distribution link between the customer and the hotel. However, the advent of the Internet prompted disruptive innovation, altering traditional industry structures and organisational relationships (Viglia, Pera, & Bigné, 2018). New platform-based players, known as online travel agencies (OTAs) emerged to take advantage of this trend, quickly gaining consumer acceptance and becoming the dominant source of hotel bookings. In 2019 an estimated 52 percent of online hotel bookings flowed through the global OTA players (Phocuswright, 2019), cementing their position as the preeminent channel of distribution for the hotel sector.

However, the role of OTAs in the hotel distribution space is controversial (Viglia et al., 2018). While hotels appreciate the bookings that flow from OTA channels, many resent the costs that working with such platforms entails. Bookings generated through OTA systems necessitate the payment of a commission, typically in the range of 15% to 30% (Ling, Dong, Guo, & Liang, 2015). In addition, channel conflict can be a challenge, with critics maintaining that OTAs simply displace bookings from one channel to another, resulting in higher costs for the same volume of bookings (Enz & Canina, 2010; Enz & James, 2017; Tooke-Marchant, 2015).

As a result, many hotels claim that they would prefer to sell their rooms through direct channels, based on a rational that less commissions paid implies higher profitability (Law, Leung, Lo, Leung, & Fong, 2015). However, this viewpoint ignores the additional marketing effort needed to drive such bookings, which entails not only maintaining a relevant technological infrastructure (website, mobile app, bookings engine), necessitating upfront capital costs, but also investing in gaining visibility in front of target customer groups (O'Connor, 2016). Such costs are sunk in that, unlike pay-per-performance OTA fees, they must be paid irrespective of whether they result in bookings (O'Connor, 2016). In addition, such an approach ignores the additional sales that come from being listed on OTA sites (at least some of which must be marginal) which, while increasing distribution costs because of their associated commissions, increase gross revenues by a larger amount, offsetting

transaction costs and resulting in higher overall profitability (Beritelli & Schegg, 2016; O'Connor & Murphy, 2008; Toh, DeKay, & Raven, 2011).

The often-contentious relationship between hotels and OTAs has been well studied in the academic literature (see, for example, (Beritelli & Schegg, 2016; Ford, Wang, & Vestal, 2012; Gössling & Lane, 2015; Law et al., 2015; Myung, Li, & Bai, 2009; Talwar, Dhir, Kaur, & Mäntymäki, 2020). However, the majority of research has been carried out from the consumer perspective (see, for example, (Chiappa, 2013; Law, 2009; Toh et al., 2011), with little addressing the issue from the viewpoint of suppliers. While the benefits of OTA use for consumers are well understood (Thakran & Verma, 2013), considerable confusion and debate remains as to whether OTA participation is beneficial for hotels (Beritelli & Schegg, 2016). In particular, the impact of OTA participation on a hotel's bottom-line profitability is far from clear, which is problematic given that driving value and financial performance are key business principles (Buhalis & Leung, 2018).

This study, therefore, sets out to address this research gap. Specifically, it will investigate and empirically establish whether working with OTAs is beneficial for hotels from a financial perspective. Analysing the financial statements of Belgian hotels over a multi-year period, it investigates whether working with Booking.com, one of the world's largest OTAs, has been financially beneficial for the properties under investigation. Focusing on Belgium, where detailed financial reporting is mandatory, means that accurate quantitative measures for financial performance as well as company-level control variables are available. Participation in Booking.com was established using a web automation tool. A two-step system GMM estimation of a regression model of firm-level return on assets (ROA) on participation in Booking.com is proposed. This assessment contained various control variables identified from the literature, including size, age, leverage, liquidity and lagged ROA. The moderating effect of firm age and size was studied by including interaction variables between the Booking.com dummy and age and size, respectively. The model was estimated using participation and financial data of 775 Belgian firms over a 20-year period (1999-2018).

Results suggest that participation in Booking.com is positively associated with ROA. This association is economically important as for a median-sized lodging business, participation in Booking.com was associated with an increase in ROA of 2.89 percentage points. The results also indicate that the positive association of participation is stronger as properties decrease in size. We speculate that participation in Booking.com reduces the barriers to online distribution and may be more beneficial to smaller companies who typically lack the expertise and technical capacity to develop, maintain and promote their own online distribution systems, websites, or mobile apps (Beritelli & Schegg, 2016).

The study answers the calls for research into how disruptive innovation through ICTs is affecting the tourism sector (Buhalis et al., 2019); interactions between constituents in the travel value chain (Benckendorff, 2014; Buhalis, 2000; Vargo & Lusch, 2008) as well as the efficiencies of the travel supply chain (Huang Yin, Goh, & Law, 2019; Mayr & Zins, 2009; Zhang, Song, & Huang, 2009). As such, the study contributes to existing body of knowledge on both intermediation and hotel distribution by shedding light on the often-confrontational hotel-OTA relationship. Unlike previous studies, which have for the most part focused on the question from a conceptual, theoretical or even speculative perspective, this study uses

comprehensive, multi-year, financial data to empirically establish whether, on balance, the benefits of OTA participation for a hotel property outweigh the (financial and other) costs, a key issue that has largely not been addressed by previous literature (Martin-Fuentes & Mellinas, 2018; Zhang et al., 2009). In addition, from a practitioner perspective, the study's findings should help with channel management, revenue management and pricing decisions, clarifying that it is worthwhile to work with online intermediaries in addition to making the economic and administrative effort to drive direct online sales.

The remainder of this paper is organised as follows. Firstly, the theoretical background of the study is introduced, and the hypotheses developed. The research methodology used to address the research question is then outlined. The results of the empirical study are then presented, with conclusions and implications for both theory and practice discussed.

Theoretical Background

Background

As outlined above, the highly perishable nature of the hotel product has made efficient and effective distribution extremely important for hotel success. While historically this involved working with intermediaries such as travel agents and tour operators. The growth of the Internet as a consumer search and e-commerce channel has prompted a paradigm shift towards online channels (Buhalis & Law, 2008),with, in particular, consumers increasingly finding, and self-booking, travel products for themselves through Internet-based channels (Gustafson, 2012). Both suppliers and intermediaries developed web presences and began trying to transact with customers, with a range of new online players with innovative business models also emerging, resulting in a complex interconnected network of distribution options for suppliers (Christodoulidou, Connolly, & Brewer, 2009). However, from the consumer perspective navigating this convoluted portfolio of options proved challenging, resulting in too much choice and confusion (Guillet, Mattila, & Gao, 2020).

This information overload challenge resulted in the emergence of specialised online platforms that aggregated and consolidated product data, prices and inventory from multiple sources, simplifying the search and book process for the consumer (O'Connor, 2009; Talwar et al., 2020). These platforms, which rapidly became known as OTAs (Kaewkitipong, 2010), 'reduced search cost and transaction friction' (Huang, *et al*., 2020, p. 960), providing potential customers with easy access to comprehensive, multi-brand travel information; rate transparency; comparable pricing, and frequently a better search and book experience (Gazzoli, Kim, & Palakurthi, 2008; Thakran & Verma, 2013; Webb, 2016).

OTAs are clearly valued by consumers, with OTA sites now playing a critical role in the trip planning of the majority of consumers (Dorcic, Komsic, & Markovic, 2019; Ert & Fleischer, 2016; Femenia-Serra, Perles-Ribes, & Ivars-Baidal, 2019; Vyas, 2019). Consequently, OTAs' share of hotel online bookings has grown to over 40% in the USA, 70% in China (Talwar et al., 2020) and 60% in Europe (Phocuswright, 2019). Similarly, from a supplier perspective, the literature has identified a variety of benefits of working with OTAs. The most important of these is visibility, with platform participation putting the property in front of, and

potentially bookable by, customers and markets that would have been difficult to access otherwise. OTAs reduce the technical and administrative hurdles of online distribution, taking care of issues such as translation, credit card processing and search engine marketing on behalf of their participants (Dorcic et al., 2019; Gössling & Lane, 2015). Participation is also low risk as OTAs are pay-per-performance, with commission only due on successful bookings and no sales meaning no cost (O'Connor, 2016). In addition, studies have shown that the visibility and exposure of being listed on an OTA results in additional direct bookings through the hotel's own website and other direct channels, a phenomenon which has become known as the 'billboard effect' (Anderson, 2009; Anderson, 2011). As these referrals do not flow through the OTA platform, they incur no commission and serve as a hidden bonus of OTA participation (McLeod, Litvin, Heriot, Jauregui, & Dempsey, 2018).

Working with OTAs also has noted disadvantages. Firstly, any indirect bookings necessitate the payment of booking fee or commission, typically in the range of 15% to 30%, reducing profitability per room on bookings driven through the system (Ling *et al*., 2015). Channel conflict is also a challenge with critics maintaining that OTAs simply displace bookings from one channel to another, resulting in higher costs for the same volume of bookings (Enz & Canina, 2010; Enz & James, 2017; Tooke-Marchant, 2015). Working with OTAs also increases complexity, with rates/inventory having to be maintained or multiple systems or technology put in place to manage multiple simultaneous channels of distribution. Loss of control is another oft-cited challenge, with independent hotels in particular struggling to work on favourable terms with their much larger OTA partners (Tooke-Marchant, 2015). Channel participation imposes certain restrictions that limit flexibility and could result in decreased performance. For example, although now formally outlawed in many regions, rate parity clauses — legal agreements that stipulate that rates on other distribution channels (other OTAs, own website, travel agencies, etc.) should not be lower than those offered on the OTA's platform — were common in the past, removing price as a competitive leaver (Huang et al., 2020; Mantovani, Piga, & Reggiani, 2018), limiting their power to both yield demand effectively and drive customers towards their preferred booking channels (Choi & Kimes, 2002).

Thus, it can be seen that, although a competitive necessity, working with OTAs remains controversial (Toh et al., 2011). Many question whether hotels have become dependent on these quasi-monopolistic online platforms and whether their net effect is positive or negative for channel participants. Despite its importance, this question has, to the best of the authors' knowledge, never been investigated empirically in the literature, providing the motivation and rational for this study.

Hypothesis Development

The theoretical underpinnings of this study lie in the organisational economics theory of transaction cost (Williamson, 1979). This is a well-established and tested theory that has been used extensively in the management literature to examine inter-organisational relationships and explain/predict the boundaries of the firm (Krzeminska, 2008; Oliver, 1990). Transaction cost theory has previously been applied in the tourism context,

particularly in relation to understanding the travel value chain (Huang Yin et al., 2019; Stumpf & Swanger, 2017; Wang & Xiang, 2007).

Transaction cost economics is rooted in the concept of the value chain – the set of value-adding activities carried out by a company to produce and market its products and/or services (Kumar & Rajeev, 2016; Porter, 1985; Zhang et al., 2009). Each activity generates coordination costs, with the optimum organizational structure the one that minimises such costs (Young, 2013). Such costs may be formal (as in the aforementioned OTA commissions) or informal (as in the costs, complexity and power asymmetry of contract negotiation) (Moliner-Velazquez, Fuentes-Blasco, & Gil-Saura, 2014). Since the boundaries of the firm are not fixed, managers must make the choice between internally performing the activity in question or sourcing it from the market (commonly known as the build, borrow or buy dilemma), with the primary decision criteria being the efficiency (in the economic, rather than the accounting, sense) of the alternative options (Coase, 1991; Williamson, 1981).

Transaction cost theory fits well with the question of distribution channel optimisation where hotels must choose between attempting to drive bookings directly (assuming all of the operational, marketing and technological challenges that this entails) and/or making use of intermediaries such as OTAs (Akbar & Tracogna, 2018; Pedrini & De Bernardi, 2020). From a system perspective, as symbiotic partners, hotels and OTAs should be cooperating to maximise value for both parties (Lohmann & Netto, 2016; Moliner-Velazquez et al., 2014). However, critics claim that this optimisation is tempered by the principal-agent problem in general (Jensen & Meckling, 1976) and moral hazard in particular (Ross, 1973), wherein the agent (in this case the OTA) leverages information asymmetry to maximise benefits to themselves rather than the principal (i.e. the hotel property) (Huang Yin et al., 2019). While, in the hotel distribution context, such accusations are frequently made in both academics (Law et al., 2015; Lee, Denizci Guillet, & Law, 2013; Yang & Leung, 2018) as well as in the trade press, they have never, to the authors' knowledge, previously been empirically tested and the resulting benefits of these alternative approaches formally established. With transaction cost theory having previously been widely used by management scholars to understand how to best organize factors of production and make decisions about whether to internally service responsibilities or contract them the marketplace (Young, 2013), it serves as a useful basis to empirically examine the direct/indirect distribution dilemma.

As outlined in the previous section, there are many benefits and transaction costs associated with OTA participation. One challenge associated with investigating this issue is the difficulty in establishing the exact costs associated with each form of reservation, due primarily to limitations in the Uniform System of Accounts used by the majority of hotels worldwide. These largely fail to record distribution costs (direct or indirect) in a manner that can be used to evaluate either option at the transaction level. However, by making use of transaction cost theory and considering the overall financial bottom line, such data can be used to evaluate the net effect of participation, investigating whether OTA distribution results in a better net economic outcome from the perspective of the hotel property (Varini, Scaglione, & Schegg, 2011). Therefore, the following hypothesis was advanced:

H1: OTA participation positively affects the profitability of participating lodging businesses.

In addition, as research suggests that the benefits of OTA membership may be greater for such properties, this paper also examines whether the net effect of OTA participation is different for smaller and/or recently established hotels. With more limited financial resources, smaller hotels typically lack both the marketing budget and technical/marketing expertise required to effectively participate in online distribution (Beritelli & Schegg, 2016; European Commission, 2017; Martin-Fuentes & Mellinas, 2018; Murphy, Olaru, Schegg, & Frey, 2003). As discussed earlier, by participating in OTA platforms (and in effect outsourcing the distribution function) they can make themselves available online on a pay-per-performance basis, helping to grow both their top-line revenue and bottom-line results (O'Connor & Murphy, 2008). Similarly, new and recently established businesses need time to develop a customer base and do not immediately benefit from notoriety and customer loyalty. By participating on OTA platforms, such hotels can level the playing field and access a global customer base (O'Connor, 2016). Based on this reasoning, the following two hypotheses were proposed:

H2: The net effect of OTA participation on profitability is more favourable for younger companies in the lodging business.

H3: The net effect of OTA participation on profitability is more favourable for smaller companies in the lodging business.

Research Methodology

The effect of OTA participation on profitability was examined by empirically analysing the financial results of Belgian lodging properties. This geographic region was selected based on the country's relatively unique legal requirement that all companies, including small and medium sized enterprises (SMEs), must publish detailed financial reports, which can be accessed via the database Belfirst, produced by Bureau Van Dijk, a subsidiary of Moody's. This requirement grants access to data useful for achieving this study's objectives, including in particular financial performance data as well as company-level control variables for use in the regression analysis. The choice of Booking.com as the unit of analysis is justified by its position as the global leader in online accommodation booking (Martin-Fuentes and Mellinas, 2018). Booking.com is the leading OTA in most European countries with an approximate market share in 2019 of 46% of the European indirect online travel market (Phocuswright, 2019). Research has shown that the majority of hotels that utilise OTAs as a distribution channel in the European context make use of Booking.com and thus it is a useful proxy for OTA participation in this study (Phocuswright, 2015).

The overall dataset was assembled as follows. First, using Python and Selenium, a web automation tool, all Belgian lodging facilities appearing on the Booking.com platform in July 2019 were collected. Lodging facilities whose initial date of participation fell between January 1st 2000 (the year of inception of Booking.com) and December 31st 2018, (the last year for which financial statements data were available on Belfirst) were identified. This resulted in a subset of 6,334 lodging facilities. Using the same tools, the name, address, postal code and the first date of participation on Booking.com of each property were

collected from Booking.com. Then all companies having NACEBEL Principal code 55 (i.e. firms earning more than 50% of income from lodging) as of September 2019 were extracted from Belfirst, resulting in a subset of 4,898 companies.

The two lists were matched based on addresses and postal codes. This matching procedure showed that there were companies in Belfirst that owned multiple lodging facilities which appeared separately in Booking.com. As the analysis required a one-to-one link between the legal entities in Belfirst and Booking.com members, these observations were removed. For the same reason, Booking.com listings that are jointly owned by multiple Belfirst businesses were discarded. After this data cleansing process, a sample of 912 firms remained. The financial data needed were collected from Belfirst for these hotel properties. In order to assess lodging business performance in the pre-participation period, financial data collection started from 1999. As some firms had missing data and other businesses entered/exited the market over the period of analysis, this resulted in an unbalanced final sample of 9,248 firm-year observations relating to 775 unique firms over a twenty-year period.

The data cleansing process used had two implications in terms of data quality. Firstly, with the exception of the final sample year (2018), hotels that had once participated in Booking.com but subsequently left were not included in the analysis. Assessing the motivation for their departure was beyond the scope of this study, but it is not unreasonable to assume that they discontinued using Booking.com as they were unhappy with the resulting performance. To that extent, our sample could suffer from self-selection bias, with the estimated coefficients from participation in Booking.com biased upwards. To assess this issue, data from the single year for which exiting hotels could be identified (2018) were used. By May 2020, of the 688 participating hotels that financial data available for 2018, 18 ceased working with the OTA. A t-test ($t = 1.44$, p-value 0.15) demonstrated that in 2018, the ROA of hotels that ceased participation was not significantly different to those that remained, suggesting that concerns about self-selection are likely unwarranted.

A second limitation of the sampling methodology used is that lodging companies who never participated in Booking.com were excluded from the analysis. As it is conceivable that company characteristics that determine Booking.com participation also influence ROA, there is the potential danger of endogeneity when regressing ROA on participation, resulting in biased coefficients. As efforts to explain Booking.com participation yielded low R^2's, techniques such as two-stage least squares or matched sampling are inappropriate to investigate endogeneity in this setting. However, by restricting the sample to companies that participated in Booking.com at some point during the sample period, the only difference between companies in the sample with respect to participation would be the timing of their decision to participate, alleviating the challenge of endogeneity. Still, it might be conceivable that hotels might decide to join once they were more profitable. To investigate this issue, for each year of the period of analysis, t-tests were conducted to assess whether hotels that decided to join in a particular year and hotels that did not yet participate were different in terms of ROA, ROA growth, age, and size in the preceding year. The results of the t-tests are summarised in Table 1 and indicate there were no significant differences, thus attenuating concerns over endogeneity. A Granger causality test was also performed, regressing ROA and respectively participation on four lags of ROA and

participation (Gujarati, 2009). In the regression of ROA, the F-statistic, comparing the R^2 of the full model (including both the lags of ROA and participation) with the R^2 of the restricted model (including only lags of ROA) was significantly different from zero (F = 6.45, p-value < 0.01). In the regression of participation, the F-statistic was not significantly different from zero (F = 1.32, p-value = 0.26). These results suggest that participation affects ROA but not vice versa. To address any remaining concern over endogeneity, the lagged value of ROA was included in the regression model.

[Insert Table 1 here]

To test the hypotheses, the following dynamic panel data regression model was proposed and estimated using a two-step system GMM (Blundell & Bond, 1998; Buhalis & Mamalakis, 2015):

$$ROA_{it} = \beta_{0i} + \beta_1 Participation_{it} + \beta_2 Participation_{it} * Age_{it} + \beta_3 Participation_{it} * Size_{it} + \beta_4 ROA_{it-1} + \beta_5 Age_{it} + \beta_6 Size_{it} + \beta_7 Leverage_{it} + \beta_8 Liquidity_{it} + \varepsilon_{it}$$

The dependent variable return on assets (ROA) is a generally accepted measure of bottom-line profitability (Penman & Penman, 2007). It is calculated as EBIT (earnings before interest and tax) of year t, divided by total assets at the beginning of year t. Given that ROA measures a firm's performance over year t, and all other variables are measured at the beginning of t, this specification is actually a lead-lag model that measures the impact of the right-hand side variables on the one-year ahead ROA.

As control variables we include four company-specific variables – age, size, leverage and liquidity – which have been shown in multiple empirical literature to affect profitability (Aissa & Goaied, 2016; Anagnostopoulou, Buhalis, Kountouri, Manousakis, & Tsekrekos, 2020; De Schoenmaker, Van Cauwenberge, & Vander Bauwhede, 2014; Goddard, Tavakoli, & Wilson, 2009; Nunes, Serrasqueiro, & Sequeira, 2009). Older companies typically have more experience and knowledge of the sector and potentially a stronger reputation (Aissa & Goaied, 2016; Madanoglu, Lee, & Castrogiovanni, 2011). On the other hand, older firms may also have greater difficulty responding to changing market preferences given an imbedded reluctance to change (Douma, George, & Kabir, 2006). Such firms may be less likely to innovate or implement new technologies and amenities (Aissa & Goaied, 2016). Therefore, a positive or a negative coefficient could be expected. Age was calculated as the natural log of (one plus (year under study minus year of incorporation of the firm)).

Size (measured as the natural logarithm of total assets) was also used as a control variable as larger firms may benefit from economies of scale stemming from fixed costs being distributed over more rooms (Serrasqueiro & Nunes, 2008). In addition, larger firms tend to spend more on advertising (Chung & Kalnins, 2001) which may result in higher occupancy rates. These arguments suggest a positive coefficient for size. However, agency theory may affect this. Although empirical evidence is mixed (Aissa & Goaied, 2016), some researchers maintain that while owners are interested in profits, managers may pursue alternative goals, resulting in a conflict of interest and suboptimal performance (Nunes et al., 2009). Many smaller firms tend to be owner managed, leading to more alignment on goals. Together these suggest that size may negatively affect ROA.

In relation to leverage (measured as the debt to total assets ratio), theory suggests both a negative and a positive relationship. Debt stimulates management to be more efficient in order to meet financial obligations (De Schoenmaker et al., 2014). These payments also reduce the available free cash flow (Jensen, 1986), hence reducing agency problems. However, restrictive conditions imposed by debtors may limit the funding available for investment opportunities (Jensen & Meckling, 1976; Nunes et al., 2009).

Lastly, liquidity typically positively affects profitability as it allows a firm to swiftly adjust to changes in the market (Goddard, Tavakoli, & Wilson, 2005). The empirical results in (Anagnostopoulou et al., 2020) support this expectation. Liquidity was proxied by the ratio of current assets to current liabilities.

To test H1, participation, a dummy variable coded one if a lodging firm participated in Booking.com at the start of t, was included. The interaction terms between participation and age and size respectively were included to test whether the effect of participation varied with age and size (H2 and H3).

Empirical results

Table 2 presents the descriptive statistics of the variables in the regression. To avoid the analysis being affected by outliers, the variables ROA, size, age, leverage, and liquidity were winsorized at the 5th and 95th percentiles. Table 2 shows that the average ROA was about 3.03%. The average age of observations in the sample was 14.93 years. Average total assets equalled 780,586 EUR and leverage and the current ratio were, on average, 77 percent and 1.0742 respectively (see Table 2).

Table 3 presents and compares the descriptive statistics for the pre- and post-participation periods. The table shows that the average ROA of observations in the pre-participation period, i.e. 2.66%, was significantly lower (p-value < 0.000) than the average ROA of observations in the post-participation period, i.e. 3.35%, which can be interpreted as a first indication of a positive net effect, i.e. a net benefit, from participating in distribution through Booking.com.

[Insert Table 2 here]

[Insert Table 3 here]

Table 4 shows the pairwise Pearson correlation coefficients among the variables included in the regression analysis. Consistent with the results of the t-test above, a significantly positive correlation coefficient between ROA and participation pointed to a favourable effect (i.e. a net benefit) from participation in Booking.com. Further, the magnitude of the correlation coefficients between the independent variables reported in Table 4 indicated that multicollinearity was not a concern.

[Insert Table 4 here]

Table 5 shows the results of the regression analysis. The coefficient of ROA_{t-1} was highly significant. Of the other control variables, only the coefficient of liquidity was (marginally) significant. For the variable of interest (participation), Table 5 shows a significant positive coefficient. This indicates that H1 is supported and that OTA participation is associated with higher profitability. As regards the interaction effects of participation with size and age, Table 5 reports a significantly negative coefficient on the interaction with size, while the interaction with age was not significant. This suggests that H3, but not H2, is supported. A potential reason why H2 may not be supported is that it may be management experience, rather than company age, that is relevant in this context (Aissa & Goaied, 2016). However, data limitations hinder further investigation of this issue.

To assess the economic importance of participation in Booking.com, the partial derivate of ROA with respect to the variable Participation was calculated, considering only the significant coefficients.

$$\frac{\partial ROA}{\partial participation} = 0.1386 - 0.0081 * size$$

Plugging in the median value for size shows the effect of participation on ROA to be 0.0289 or 2.89 percentage point. Given the mean ROA of 3.03 percent for the whole sample, this effect can be considered economically important suggesting that hotels that participate in Booking.com are substantially more profitable than those that do not. Given the tight margins that typify the hotel sector (Aissa & Goaied, 2016), this performance boost represents a key argument as to why hotels should work with OA partners.

[Insert Table 5 here]

Conclusion and Recommendations

Effective and efficient distribution has been identified as a key success factor in the hotel sector (O'Connor, 2019). Over past decades, advances in technology have had a profound impact on distribution, structurally changing the relations between suppliers, intermediaries and consumers (Law, Bai, Ip, & Leung, 2011). The variety of media (web, mobile, social media) and business models (direct, meta-search, intermediaries) within the hotel distribution environment have also become increasingly complex, with the growth in the portfolio of interconnecting distribution channels provoking confusion as to which channels are most appropriate and prompting a need for objective assessments of channel performance (O'Connor & Frew, 2002).

With OTAs gaining increased market share, this paper investigated the effect of OTA participation on hotel property net financial performance. While OTA participation may increase gross revenues, it also brings potential disadvantages and risks, in particular higher transaction costs and supposed direct booking channel cannibalisation. While there has

been considerable debate from a theoretical, or perhaps even speculative, perspective, until now no empirical study has attempted to assess whether the advantages of participating on OTA channels outweigh the costs in the broadest sense.

This paper filled this void by investigating the net effect of participation in Booking.com on hotel properties' return on assets (ROA). The findings clearly demonstrate a statistically and economically important positive effect on profitability amongst hotel properties that participated in Booking.com compared to those that did not, suggesting that participation in OTAs is a net positive for hotel properties and that the resulting revenues outweigh the costs involved. This positive effect is even more pronounced for smaller companies, confirming suggestions from prior studies (see for example, (Carroll & Siguaw, 2003; Myung et al., 2009; Nunes et al., 2009; O'Connor, 2016). While identifying the underlying causes is outside the scope of this study, we speculate that since smaller properties tend to be owner managed; suffer from lower occupancy; make less use of technology; and have lower dedicated marketing budgets, participating in an OTA channel allow them to be more widely distributed, increasing product awareness and selling them in markets that they could not otherwise have accessed, thus growing revenues. More importantly, the costs of doing so, traditionally perceived to be high and even prohibitive, increase at a slower rate than the resulting revenues, leaving participating properties in a more favourable net financial position.

A common view is that OTAs, due to their market power, are a strategic threat to the hotel sector and that OTA profits are gained at the expense of hotel partners (Carvell & Quan, 2008). This contrasts sharply with theory of the firm and transaction cost theory, which maintains that partners will only continue to work with each other as long as the benefits outweigh the costs (Akbar & Tracogna, 2018). Although OTA membership may have challenges, the results from this study suggest that the benefits substantially outweigh the costs. These results support the qualitative findings of (Myung et al., 2009) from interviews with hotel managers where it was found that although conflicts between hotels and OTAs do exist, hotels were satisfied overall with the profit contribution of e-wholesalers. The findings of both this study and Myung et al. (2009) suggest that hotels succeed in managing any channel conflicts effectively and that participation in OTA channels results in a clear and substantial boost to the hotel properties' bottom line.

The study makes four main contributions to extant literature. First it answers the call for a deeper understanding of the hotel-OTAs relationship, utilising transaction cost theory to explore how despite much discontent and discussion hotels derive added value from this dyadic relationship (see, for example, (Dorcic et al., 2019; O'Connor & Frew, 2002). Second, the study is, to the best of our knowledge, the first to investigate whether the net benefits of participation in an OTA outweigh the associated financial and strategic costs. As such it contributes to the research stream on the drivers of hotel profitability (Aissa & Goaied, 2016; Anagnostopoulou et al., 2020; S. Lee & Park, 2009). Thirdly, the study contributes to our theoretical understanding of whether participation in online travel distribution platforms creates value for players within the hotel sector, extending prior studies on the role and importance of OTAs (for example, (Buhalis & Leung, 2018; Leung, 2019; Martin-Fuentes & Mellinas, 2018; O'Connor, 2019; Weigert, 2019) and contributing to our understanding of the benefits of intermediation, specifically in the hotel context, where

efficient and effective distribution are critical to hotel profitability (Anagnostopoulou et al., 2020). Importantly, by examining impact on bottom-line profitability, the study considered both the benefits (in terms of increased revenues) and costs in the broadest strategic, rather than solely the financial, sense. Finally, the empirical model proposed is broadly applicable and could be used to assess the effect of participation in other platforms, not just for tourism and hospitality companies but within online retailing in general.

Results of this study challenge the conventional opinion among practitioners that working with OTAs is costly. The study's findings clearly show that, when all revenues and costs are considered, hotel properties that work with Booking.com are more profitable, with any direct or indirect costs being absorbed by the increased revenues, leading to enhanced financial performance. A practical implication of these findings is that they provide a clear answer to the question as to whether the benefits of participation in an OTA outweigh the resulting costs. As advancements in technology have generated a plethora of potential distribution channels, choosing between these channels has become increasingly challenging, inflating the expertise needed to successfully manage this complex and evolving environment (O'Connor & Frew, 2002). Such complexity makes it difficult for hotel managers to optimise their distribution. To insure success, hotels need to better understand the relative contribution of alternative channels (Beritelli & Schegg, 2016). With the goal of ensuring favourable financial results (Carroll & Siguaw, 2003), most suppliers use multiple simultaneous electronic channels without a clear understanding of their individual contribution to bottom-line profitability (Enz, 2003). Optimising distribution channel strategy requires data (O'Connor, 2016). The empirical findings in this study and the empirical framework that was applied therein are therefore useful in this respect and could be used by practitioners in their distribution channel portfolio management.

Limitations and future research

As with all research, this study suffers from several limitations. As previously discussed, from the sampling methodology used there is a danger of self-selection as hotels disappointed with their financial return may have discontinued participation in Booking.com and were thus omitted, biasing the estimated coefficient of participation upwards. However, post-hoc analysis of hotels that ceased participating in the final year showed that the ROA of hotels that exited the platform was not significantly different to those who remained. Although reassuring, we cannot be certain that this was also the case in previous years, with the result that our findings may be too optimistic. Another potential limitation pertains to the dichotomic way in which participation in Booking.com was measured. In this study, a hotel either participated or did not, while in reality different degrees of participation are possible. For example, one hotel may occasionally make rooms available via Booking.com to address unforeseen unsold capacity, while another may list its entire inventory and receive the majority of its bookings through the platform. The measure of participation used in this study (a simple Yes/No) was unable to capture this differentiation and should be addressed by future studies.

Thirdly, the study was deliberately conducted in Belgium, where company law requires all companies to publish detailed financial reports in a standardised format. Limiting the

sample to Belgium could have implications in terms of generalisability of the results. However, the Belgian hotel sector, with its large proportion of smaller and independent hotels, is typical of many European markets, making significant differences unlikely. Future work could test this theory by expanding this study to other countries to validate and expand its findings. Another suggestion for future research pertains to the effect of rate parity clauses – contractual agreements between hotel properties and OTA to display the same gross selling price irrespective of point of sale. Since these clauses limited price competition between hotels and OTAs, they may have resulted in a disproportionate share of bookings through OTA channels. European competition authorities have since regulated their use, with Belgium effectively prohibiting rate parity clauses in 2019. An interesting follow up study could be to investigate the effect of these changes on both financial performance and the findings of this study as regards the benefits of platform participation. Finally, while ROA represents a good metric for success in business, it remains a financial metric. In line with (Buhalis & Mamalakis, 2015), it would be better to consider a broader range of both financial and non-financial metrics to evaluate platform participation. Future work on the assessment of distribution channel performance should therefore consider the effect on non-financial metrics and investigate how these soft measures complement, moderate or predict financial measures.

Table 1: Mean comparison between newly participating and non-participating hotels

			ROA t-1			Age t-1			Size t-1			ROA growth t-1			
Year	Group	N	Mean	t-stat	p-value	Mean	t-stat	p-value	Mean	t-stat	p-value	N	Mean	t-stat	p-value
2001	0	299	0.0578	-0.9191	0.3588	2.3456	-0.5726	0.5673	**13.3671**	**-2.8493**	**0.0047**	212	6.4802	0.2057	0.8372
	1	8	0.0903			2.4877			**14.8478**			6	0.1421		
2002	0	306	0.0459	-0.2515	0.8016	2.3045	-1.8670	0.0628	**13.3300**	**-2.3830**	**0.0178**	217	-0.2821	-0.2487	0.8038
	1	14	0.0525			2.6952			**14.2634**			13	-0.1243		
2003	0	327	0.0431	-0.3249	0.7454	2.2948	-0.9199	0.3583	13.4055	0.2274	0.8203	223	0.4467	0.3229	0.7471
	1	4	0.0592			2.6590			13.2432			3	-0.2733		
2004	0	347	0.0236	-0.1852	0.8532	2.3242	-0.6791	0.4975	13.3471	-1.6605	0.0977	**217**	**-0.0634**	**2.6762**	**0.0080**
	1	20	0.0280			2.4443			13.8789			**16**	**-2.5178**		
2005	0	359	0.0218	0.2827	0.7776	2.3299	0.2982	0.7657	13.3322	-0.8377	0.4028	210	-0.2755	-0.0756	0.9398
	1	12	0.0134			2.2612			13.6766			8	-0.1774		
2006	0	344	0.0337	-0.8701	0.3848	2.3398	-0.8586	0.3911	13.3438	-0.3850	0.7005	208	0.1498	-0.7961	0.4268
	1	32	0.0501			2.4625			13.4440			20	1.0459		
2007	0	339	0.0193	-0.9337	0.3511	2.3551	-0.4169	0.6770	13.3397	-0.9610	0.3372	215	-0.9144	-0.7187	0.4731
	1	27	0.0382			2.4200			13.6134			17	0.1691		
2008	0	322	0.0200	0.5711	0.5683	**2.3796**	**2.5112**	**0.0125**	13.3092	-1.7242	0.0856	207	-0.9242	-0.1193	0.9051
	1	17	0.0056			**1.8903**			13.9161			8	-0.6586		
2009	0	336	0.0326	-1.3493	0.1781	2.4064	-0.3940	0.6938	13.3499	-1.3471	0.1788	215	-0.7149	1.0837	0.2797
	1	18	0.0669			2.4855			13.8090			11	-3.4252		
2010	0	261	0.0143	1.7281	0.0849	2.4466	0.2876	0.7738	**13.2745**	**-4.3975**	**0.0000**	159	-0.4662	-0.7710	0.4416
	1	83	-0.0073			2.4170			**14.0287**			57	1.2357		
2011	0	191	0.0088	-0.6290	0.5299	2.4107	-1.9057	0.0578	**13.0197**	**-4.9106**	**0.0000**	108	0.4233	-0.4698	0.6392
	1	80	0.0176			2.6094			**13.8994**			42	1.2234		
2012	0	167	0.0109	-0.7667	0.4442	2.3425	0.2735	0.7847	13.0672	0.4663	0.6415	80	-0.1301	0.4757	0.6353
	1	38	0.0268			2.2987			12.9551			18	-0.3799		
2013	0	136	0.0089	1.0114	0.3132	2.4127	0.5291	0.1805	13.1863	0.5586	0.5772	79	-1.9552	-0.2414	0.8098
	1	37	-0.0106			2.1983			13.0494			8	-0.5788		
2014	0	92	0.0048	-0.6996	0.4854	2.3911	-0.4069	0.6847	13.0615	-1.6404	0.1032	45	0.0978	1.3192	0.1915
	1	48	0.0189			2.4538			13.4538			25	-1.7784		
2015	0	76	-0.0076	-0.5212	0.6034	2.4221	1.0284	0.3062	13.0232	-1.0744	0.2852	37	3.0466	0.5691	0.5720
	1	27	0.0072			2.2186			13.3382			12	-0.3854		
2016	0	54	0.0040	1.0887	0.2797	2.5080	0.2512	0.8023	13.1136	-0.5365	0.5932	28	-0.1869	-0.0168	0.9867
	1	25	-0.0259			2.4631			13.2813			13	-0.1806		
2017	0	32	0.0036	0.7924	0.4316	2.5335	0.3136	0.7550	13.1971	0.1776	0.8597	20	-0.2855	0.3055	0.7621
	1	24	-0.0223			2.4732			13.1333			12	-0.9039		

Table 2: Descriptive statistics (full sample)[§]

Variable	#Obs	Mean	Std. Dev	Min	25th percentile	Median	75th percentile	Max
ROA	9248	0.0303	0.0996	-0.1976	-0.0160	0.0294	0.0760	0.2546
Participation	9248	0.5330	0.4989	0	0	1	1	1
Age	9248	2.5976	0.7123	0.6931	2.0794	2.7081	3.1781	3.6376
Size	9248	13.5678	1.4170	10.9546	12.5212	13.5474	14.5837	16.1719
Leverage	9248	0.7677	0.3534	0.1676	0.5169	0.7764	0.9639	1.5811
Liquidity	9248	1.0742	1.2929	0.0477	0.2376	0.5869	1.3000	5.0816

[§] For variable definitions, see text.

Table 3: Descriptive statistics for the pre- and post-participation period separately[§]

	Pre-participation				Post-participation					
Variable	#Obs	Mean	Median	Std. Dev	#Obs	Mean	Median	Std. Dev	t-stats[#]	p-value
ROA	4319	0.0266	0.0276	0.1039	4929	0.0335	0.0306	0.0955	-3.3383	0.0008
Age	4319	2.4714	2.5649	0.6994	4929	2.7081	2.8332	0.7052	-16.1640	0.0000
Size	4319	13.3562	13.3439	1.4056	4929	13.7532	13.7369	1.4009	-13.5740	0.0000
Leverage	4319	0.7627	0.7706	0.3450	4929	0.7722	0.7806	0.3605	-1.2932	0.1960
Liquidity	4319	1.1184	0.6297	1.3260	4929	1.0356	0.5583	1.2621	3.0756	0.0021

[§]For variable definitions, see text.

[#]Test statistics and p-values of t-tests for differences in means.

Table 4: Pearson correlation[§]

	ROA	Participation	Age	Size	Leverage	Liquidity
ROA	1					
Participation	0.0347 0.0008	1				
Age	-0.0078 0.4540	0.1658 0.0000	1			
Size	-0.0449 0.0000	0.1398 0.0000	0.2407 0.0000	1		
Leverage	-0.0726 0.0000	0.0134 0.1960	-0.1988 0.0000	-0.0941 0.0000	1	
Liquidity	0.0699 0.0000	-0.0320 0.0021	0.1623 0.0000	-0.0005 0.9611	-0.4982 0.0000	1

[§] For variable definitions, see text. Correlation coefficient on first line, p-values on second line.

Table 5: Regression summary[§]

	Expected sign	Dependent variable: ROA
Test Variables		
Participation	?	0.1386***
		(0.0275)
Participation*Age	-	-0.0038
		(0.0038)
Participation*Size	-	-0.0081***
		(0.0020)
Control Variables		
ROA $_{t-1}$	+	0.3098***
		(.0225)
Age	+/-	0.0026
		(.0030)
Size	+/-	0.0016
		(.0017)
Leverage	+/-	-0.0034
		(0.0057)
Liquidity	+	0.0023*
		(0.0012)
Observation		9248
Number of Firms		775
Year Dummies		Yes
HAC Errors		Yes
AR(1)		0.000
AR(2)		0.7739
Hansen J-test		0.122

[§] For variable definitions, see text. Standard errors between brackets. *, ** and *** denote statistical significance at 10, 5 and 1 percent respectively.

References

Aissa, S. B., & Goaied, M. (2016). Determinants of Tunisian hotel profitability: The role of managerial efficiency. *Tourism management, 52*, 478-487.

Akbar, Y. H., & Tracogna, A. (2018). The sharing economy and the future of the hotel industry: Transaction cost theory and platform economics. *International Journal of Hospitality Management, 71*, 91-101. doi:10.1016/j.ijhm.2017.12.004

Anagnostopoulou, S. C., Buhalis, D., Kountouri, I. L., Manousakis, E. G., & Tsekrekos, A. E. (2020). The impact of online reputation on hotel profitability. *International Journal of Contemporary Hospitality Management*.

Anderson, C. (2009). The billboard effect: Online travel agent impact on non-OTA reservation volume.

Anderson, C. K. (2011). Search, OTAs, and online booking: An expanded analysis of the billboard effect. *Cornell Hospitality Report, 11*(8), 4-10.

Benckendorff, P. (2014). *Tourism information technology / Pierre J. Benckendorff, The University of Queensland, Australia; Pauline J. Sheldon, University of Hawaii, USA; Daniel R. Fesenmaier, University of Florida, USA*. Wallingford, Oxfordshire, UK ; Boston, MA: CABI.

Beritelli, P., & Schegg, R. (2016). Maximizing online bookings through a multi-channel-strategy. *International Journal of Contemporary Hospitality Management*.

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of econometrics, 87*(1), 115-143.

Buhalis, D. (2000). Tourism and information technologies: Past, present and future. *Tourism recreation research, 25*(1), 41-58.

Buhalis, D., Harwood, T., Bogicevic, V., Viglia, G., Beldona, S., & Hofacker, C. (2019). Technological disruptions in services: lessons from tourism and hospitality. *Journal of Service Management*.

Buhalis, D., & Law, R. (2008). Progress in information technology and tourism management: 20 years on and 10 years after the Internet—The state of eTourism research. *Tourism management, 29*(4), 609-623.

Buhalis, D., & Leung, R. (2018). Smart hospitality—Interconnectivity and interoperability towards an ecosystem. *International Journal of Hospitality Management, 71*, 41-50.

Buhalis, D., & Mamalakis, E. (2015). Social media return on investment and performance evaluation in the hotel industry context. In *Information and communication technologies in Tourism 2015* (pp. 241-253): Springer.

Campos Soria, J., García, L., & Ropero, M. A. (2005). Service Quality and Competitiveness in the Hospitality Sector. *Tourism Economics, 11*, 85-102. doi:10.5367/0000000053297194

Carroll, B., & Siguaw, J. (2003). The evolution of electronic distribution: Effects on hotels and intermediaries. *Cornell Hotel and Restaurant Administration Quarterly, 44*(4), 38-50.

Carvell, S. A., & Quan, D. C. (2008). Exotic reservations—Low-price guarantees. *International Journal of Hospitality Management, 27*(2), 162-169.

Chiappa, G. D. (2013). Internet versus travel agencies: The perception of different groups of Italian online buyers. *Journal of Vacation Marketing, 19*(1), 55-66.

Choi, S., & Kimes, S. E. (2002). Electronic distribution channels' effect on hotel revenue management. *The Cornell hotel and restaurant administration quarterly, 43*(3), 23-31.

Christodoulidou, N., Connolly, D. J., & Brewer, P. (2009). Travel meta-search: Opportunity or threat? *Tourism Analysis, 14*(6), 821-832.
Chung, W., & Kalnins, A. (2001). Agglomeration effects and performance: A test of the Texas lodging industry. *Strategic Management Journal, 22*(10), 969-988.
Coase, R. H. (1991). The nature of the firm (1937). *The Nature of the Firm. Origins, Evolution, and Development. New York, Oxford*, 18-33.
De Schoenmaker, S., Van Cauwenberge, P., & Vander Bauwhede, H. (2014). Effects of local fiscal policy on firm profitability. *The Service Industries Journal, 34*(16), 1289-1306.
Dorcic, J., Komsic, J., & Markovic, S. (2019). Mobile technologies and applications towards smart tourism–state of the art. *Tourism Review*.
Douma, S., George, R., & Kabir, R. (2006). Foreign and domestic ownership, business groups, and firm performance: Evidence from a large emerging market. *Strategic Management Journal, 27*(7), 637-657.
Enz, C. A. (2003). Hotel pricing in a networked world.(From the Executive Director). *Cornell Hotel & Restaurant Administration Quarterly, 44*(1), 4-6.
Enz, C. A., & Canina, L. (2010). Competitive pricing in European hotels. In *Advances in hospitality and leisure*: Emerald Group Publishing Limited.
Enz, C. A., & James, E. C. (2017). Beyond channel mix management: Building within online travel agencies (OTA) metrics and strategies. *Journal of Revenue and Pricing Management, 16*(2), 109-114.
Ert, E., & Fleischer, A. (2016). Mere position effect in booking hotels online. *Journal of Travel Research, 55*(3), 311-321.
European Commission. (2017). *Report on the monitoring exercise carried out in the online hotel booking sector by EU competition authorities in 2016*. Retrieved from http://ec.europa.eu/competition/ecn/hotel_monitoring_report_en.pdf
Femenia-Serra, F., Perles-Ribes, J. F., & Ivars-Baidal, J. A. (2019). Smart destinations and tech-savvy millennial tourists: hype versus reality. *Tourism Review*.
Ford, R. C., Wang, Y., & Vestal, A. (2012). Power asymmetries in tourism distribution networks. *Annals of Tourism Research, 39*(2), 755-779.
Gazzoli, G., Kim, W. G., & Palakurthi, R. (2008). Online distribution strategies and competition: are the global hotel companies getting it right? *International Journal of Contemporary Hospitality Management*.
Goddard, J., Tavakoli, M., & Wilson, J. O. (2005). Determinants of profitability in European manufacturing and services: evidence from a dynamic panel model. *Applied Financial Economics, 15*(18), 1269-1282.
Goddard, J., Tavakoli, M., & Wilson, J. O. (2009). Sources of variation in firm profitability and growth. *Journal of Business Research, 62*(4), 495-508.
Gössling, S., & Lane, B. (2015). Rural tourism and the development of Internet-based accommodation booking platforms: a study in the advantages, dangers and implications of innovation. *Journal of Sustainable Tourism, 23*(8-9), 1386-1403.
Guillet, B. D., Mattila, A., & Gao, L. (2020). The effects of choice set size and information filtering mechanisms on online hotel booking. *International Journal of Hospitality Management, 87*, 102379.
Gujarati, D. (2009). N., and Dawn C., Porter (2009). *Basic Econometrics, 5*.
Gustafson, P. (2012). Managing business travel: Developments and dilemmas in corporate travel management. *Tourism management, 33*(2), 276-284.

Huang, H., Liu, Y., & Lu, D. (2020). Proposing a model for evaluating market efficiency of OTAs: Theoretical approach. *Tourism Economics, 26*(6), 958-975.
Huang Yin, C., Goh, E., & Law, R. (2019). Developing inter-organizational relationships with online travel agencies (OTAs) and the hotel industry. *Journal of Travel & Tourism Marketing, 36*(4), 428-442.
Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *The American economic review, 76*(2), 323-329.
Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics, 3*(4), 305-360.
Kaewkitipong, L. (2010). *Disintermediation in the tourism industry: Theory vs. practice.* Paper presented at the SIGeBIZ track of the Americas Conference on Information Systems.
Kim, W. G., Cho, M., & Brymer, R. A. (2013). Determinants affecting comprehensive property-level hotel performance: The moderating role of hotel type. *International Journal of Hospitality Management, 34*, 404-412.
Kimes, S. E. (1989). The basics of yield management. *Cornell Hotel and Restaurant Administration Quarterly, 30*(3), 14-19.
Krzeminska, A. (2008). *Determinants and management of make-and-buy: an extension to transaction cost economics*: Springer Science & Business Media.
Kumar, D., & Rajeev, P. (2016). Value chain: a conceptual framework. *International Journal of Engineering and Management Sciences, 7*(1), 74-77.
Law, R. (2009). Disintermediation of hotel reservations. *International Journal of Contemporary Hospitality Management*.
Law, R., Bai, B., Ip, C., & Leung, R. (2011). Progress and development of information and communication technologies in hospitality. *International Journal of Contemporary Hospitality Management*.
Law, R., Leung, R., Lo, A., Leung, D., & Fong, L. H. N. (2015). Distribution channel in hospitality and tourism. *International Journal of Contemporary Hospitality Management*.
Lee, H. A., Denizci Guillet, B., & Law, R. (2013). An examination of the relationship between online travel agents and hotels: A case study of Choice Hotels International and Expedia. com. *Cornell Hospitality Quarterly, 54*(1), 95-107.
Lee, S., & Park, S.-Y. (2009). Do socially responsible activities help hotels and casinos achieve their financial goals? *International Journal of Hospitality Management, 28*(1), 105-112.
Leung, R. (2019). Smart hospitality: Taiwan hotel stakeholder perspectives. *Tourism Review*.
Ling, L., Dong, Y., Guo, X., & Liang, L. (2015). Availability management of hotel rooms under cooperation with online travel agencies. *International Journal of Hospitality Management, 50*, 145-152.
Lohmann, G., & Netto, A. P. (2016). *Tourism theory: Concepts, models and systems*: Cabi.
Madanoglu, M., Lee, K., & Castrogiovanni, G. J. (2011). Franchising and firm financial performance among US restaurants. *Journal of Retailing, 87*(3), 406-417.
Mantovani, A., Piga, C., & Reggiani, C. (2018). On the economic effects of price parity clauses-What do we know three years later? *Journal of European Competition Law & Practice, 9*(10), 650-654.
Martin-Fuentes, E., & Mellinas, J. P. (2018). Hotels that most rely on Booking. com–online travel agencies (OTAs) and hotel distribution channels. *Tourism Review*.

Mayr, T., & Zins, A. (2009). Acceptance of Online vs. Traditional Travel Agencies. *Anatolia, 20*. doi:10.1080/13032917.2009.10518902

McLeod, B., Litvin, S. W., Heriot, K. C., Jauregui, A., & Dempsey, E. (2018). The Effect of Delisting a Hotel Market from Online Travel Agency Websites: Evidence from Columbus, Georgia. *Tourism Review International, 22*(1), 41-48.

Moliner-Velazquez, B., Fuentes-Blasco, M., & Gil-Saura, I. (2014). Value antecedents in relationship between tourism companies. *Journal of Business & Industrial Marketing*.

Murphy, J., Olaru, D., Schegg, R., & Frey, S. (2003). The bandwagon effect: Swiss hotels' web-site and e-mail management. *The Cornell hotel and restaurant administration quarterly, 44*(1), 71-87.

Myung, E., Li, L., & Bai, B. (2009). Managing the distribution channel relationship with E-Wholesalers: Hotel Operators' Perspective. *Journal of Hospitality Marketing & Management, 18*(8), 811-828.

Nunes, P. J. M., Serrasqueiro, Z. M., & Sequeira, T. N. (2009). Profitability in Portuguese service industries: a panel data approach. *The Service Industries Journal, 29*(5), 693-707.

O'Connor, P. (1999). *Electronic information distribution in tourism and hospitality*: CAB international.

O'Connor, P. (2016). Distribution channel management in hotel chains. *2016). The Rutledge Handbook on Hotel Chain Management, Rutledge*, 251-253.

O'Connor, P., & Murphy, J. (2008). Hotel yield management practices across multiple electronic distribution channels. *Information Technology & Tourism, 10*(2), 161-172.

O'Neill, J. W., Mattila, A. S., & Xiao, Q. (2006). Hotel Guest Satisfaction and Brand Performance. *Journal of Quality Assurance in Hospitality & Tourism, 7*(3), 25-39. doi:10.1300/J162v07n03_02

O'Connor, P. (2009). Distribution channels and e-commerce. In *Handbook of Hospitality Marketing Management* (pp. 208-230): Routledge.

O'Connor, P. (2019). Online tourism and hospitality distribution: a perspective article. *Tourism Review*.

O'Connor, P., & Frew, A. J. (2002). The future of hotel electronic distribution: Expert and industry perspectives. *Cornell Hotel and Restaurant Administration Quarterly, 43*(3), 33-45.

Oliver, C. (1990). Determinants of Interorganizational Relationships: Integration and Future Directions. *The Academy of Management Review, 15*(2), 241-265. doi:10.2307/258156

Pedrini, M., & De Bernardi, C. (2020). To affiliate, or not to affiliate. Transaction costs and governance choices in luxury hotels in Germany. *Tourism and hospitality research, 20*(3), 272-287. doi:10.1177/1467358419848136

Penman, S. H., & Penman, S. H. (2007). *Financial statement analysis and security valuation* (Vol. 3): McGraw-Hill New York.

Phocuswright. (2015). *Independent Lodging Market: Marketing, Distribution and Technology Strategies for NonBranded Properties*. Sherman, NY: Phocuswright Inc.

Phocuswright. (2019). *Europe Online Travel Overview 2019*. Retrieved from

Porter, M. E. (1985). *Competitive Advantage: Creating and Sustaining Superior Performance*: Free Press.

Ross, S. A. (1973). The economic theory of agency: The principal's problem. *The American economic review, 63*(2), 134-139.

Serrasqueiro, Z. S., & Nunes, P. M. (2008). Performance and size: empirical evidence from Portuguese SMEs. *Small Business Economics, 31*(2), 195-217.
Stumpf, T., & Swanger, N. (2017). Institutions and transaction costs in foreign-local hotel ventures: A grounded investigation in the developing Pacific. *Tourism management, 61*, 368-379.
Talwar, S., Dhir, A., Kaur, P., & Mäntymäki, M. (2020). Why do people purchase from online travel agencies (OTAs)? A consumption values perspective. *International Journal of Hospitality Management, 88*, 102534.
Thakran, K., & Verma, R. (2013). The emergence of hybrid online distribution channels in travel, tourism and hospitality. *Cornell Hospitality Quarterly, 54*(3), 240-247.
Toh, R. S., DeKay, C. F., & Raven, P. (2011). Travel Planning: Searching for and Booking Hotels on the Internet. *Cornell Hospitality Quarterly, 52*(4), 388-398. doi:10.1177/1938965511418779
Tooke-Marchant, R. (2015). Online travel agents (OTAs) and their dominance of search engine results: Can independent hotels compete? *Journal of direct, data and digital Marketing Practice, 16*(3), 154-156.
Vargo, S. L., & Lusch, R. F. (2008). Service-dominant logic: continuing the evolution. *Journal of the Academy of marketing Science, 36*(1), 1-10.
Varini, K., Scaglione, M., & Schegg, R. (2011). Distribution channel and efficiency: An analytic hierarchy process approach. In *Information and Communication Technologies in Tourism 2011* (pp. 547-558): Springer.
Viglia, G., Pera, R., & Bigné, E. (2018). The determinants of stakeholder engagement in digital platforms. *Journal of Business Research, 89*, 404-410.
Vyas, C. (2019). Evaluating state tourism websites using Search Engine Optimization tools. *Tourism management, 73*, 64-70.
Wang, Y., & Xiang, Z. (2007). Toward a theoretical framework of collaborative destination marketing. *Journal of Travel Research, 46*(1), 75-85.
Webb, T. (2016). From travel agents to OTAs: How the evolution of consumer booking behavior has affected revenue management. *Journal of Revenue and Pricing Management, 15*(3-4), 276-282.
Weigert, M. (2019). Jumia travel in Africa: expanding the boundaries of the online travel agency business model. *Tourism Review*.
Williamson, O. E. (1979). Transaction-cost economics: the governance of contractual relations. *The journal of Law and Economics, 22*(2), 233-261.
Williamson, O. E. (1981). The economics of organization: The transaction cost approach. *American journal of sociology, 87*(3), 548-577.
Yang, Y., & Leung, X. Y. (2018). A better last-minute hotel deal via app? Cross-channel price disparities between HotelTonight and OTAs. *Tourism management, 68*, 198-209.
Young, S. (2013). Transaction Cost Economics. In S. O. Idowu, N. Capaldi, L. Zu, & A. D. Gupta (Eds.), *Encyclopedia of Corporate Social Responsibility* (pp. 2547-2552). Berlin, Heidelberg: Springer Berlin Heidelberg.
Zhang, X., Song, H., & Huang, G. Q. (2009). Tourism supply chain management: A new research agenda. *Tourism management, 30*(3), 345-358.